

REMARKS

Applicant respectfully requests reexamination, reconsideration and allowance of claims 1-43, as amended, in view of the following.

The Amendment of the Claims

In response to the rejection of claims 29-40 under 35 USC §101, Applicant has amended claims 29-40 so that the claims now recite a structure or a process which includes a polyolefin-based adhesive resin produced according to Applicant's claimed invention, bonded to at least one substrate in accordance with the process. Thus; it is respectfully submitted that the noted claims no longer are directed to non-statutory subject matter, and, it is submitted, are allowable over the cited references.

The Rejection of Claims 3-5 and 15-17 under 35 USC §112

Claims 3-5 and 15-17 were rejected in the Office Action as being indefinite under 35 USC §112, second paragraph. Applicant respectfully submits that the claims are not indefinite, but that a first reading thereof may have led to initial confusion as to the meaning of "an adhesion promoting resin".

The Addition of an Adhesion Promoting Resin is an Additional Ingredient

The Examiner correctly notes that the process of claim 1 forms a polyolefin-based adhesive resin. However, the addition of an "adhesive promoting" resin material in the heated mixing device in claims 3-5 and 15-17 achieves higher levels of adhesion than otherwise obtained by the adhesive resin produced in accordance with the process

of claims 1 and 14 without the additional step. Clearly, claims 3-5 and 15-17 recite the addition of an additional material to that recited in claims 1 and 14.

Applicant's Specification Points to the Additional Material

The requirement in claims 3-5 and 15-17 that an additional material is recited is evidenced by the specification, page 6, lines 5 -8, and by claims 4 and 16 reciting the adhesion promoting resin comprises a thermoplastic elastomer and claims 5 and 17 reciting the adhesion promoting resin comprises a metallocene catalyzed ethylene copolymer. It is evident that the additional adhesion promoting resin in claims 3-5 and 15-17 is not the material explicitly recited in claims 1 or 14.

In view of the clear differentiation of the material recited in the additional step in claims 3-5 and 15-17, as compared to the recitation of the materials in claims 1 and 14, it is respectfully submitted that the claims are definite and particularly point out and distinctly claim applicant's invention.

The Rejection of Claims as Being Anticipated by Schombourg et al.

Claims 1-40 were rejected in the Action, at page 3, as being anticipated by Schombourg et al. under 35 USC §102(e). Applicant submits that Schombourg et al. does not teach, suggest or contemplate the process defined by Applicant's claims, as established by the following.

The Cited TPV May be Used as a Component of an Adhesive, But is Not an Adhesive

Schombourg et al. teaches a silane vulcanized thermoplastic elastomer or thermoplastic vulcanizate ("TPV"), which is crosslinked, and is not in itself an adhesive. As noted by Schombourg et al. at the top of column 8, lines 5 and 6, "The TPVs may be used in, e.g. adhesives and sealants,..." (Emphasis added). Thus, Schombourg et al.'s TPV can be a component of an adhesive, but is not in itself an adhesive, and thus the patent does not teach or suggest Applicant's claimed invention.

It is submitted that those skilled in the art are aware many materials can be incorporated in the formulation of an adhesive to modify or improve physical and mechanical properties, and that elastomers or fillers can be used in an adhesive, but that these materials may not be adhesives.

Crosslinking is Necessary in the Cited Reference, But is Minimized and Detrimental in Applicant's Process

Schombourg et al. teaches that cross-linking is desired and necessary in the TPV's. The Examiner noted in the Action, in the sentence bridging pages 3 and 4, that Schombourg discloses that an aminosilane cross-linker is added. Schombourg et al. teaches that an amino silane is an essential ingredient in the product and process (Col. 2, line 61-62 and all claims); and that the aminosilane is allowed to crosslink. (Col. 3, line 16 and process claims 14-24). As noted at Column 4, lines 47-52, Schombourg et al. teaches that the amino silanes used in the manufacture of the TPV's have at least one hydrolyzable group, and preferably "at least two such hydrolyzable groups capable of undergoing crosslinking condensation reaction..."

Contrary to the technology employed in Schombourg et al. where the amount of crosslinking is maximized, Applicant's process minimizes or eliminates the amount of crosslinking of the material. Applicant teaches in his specification that

the polyolefin-based adhesive resins produced according to the invention have...less crosslinking... than conventional polyolefin-based adhesive resins...
(Applicant's Application, paragraph 0022).

As Applicant points out, in the process of his invention to produce improved polyolefin-based adhesives, cross-linking is detrimental to the properties and performance of the adhesives and the amount of crosslinking is minimized or eliminated.

Schombourg Teaches Away from Applicant's Invention

In view of Schombourg et al.'s clear teaching that an aminosilane which is allowed to cross-link is a necessary ingredient, and that cross-linking is essential to Schombourg et al.'s process, it is submitted that Schombourg et al. teaches away from Applicant's claimed invention. Therefore, Schombourg et al. cannot anticipate Applicant's claims.

The Other Points on Page 4 of the Action Do Not Suggest Applicant's Process

Furthermore, with regard to particular points raised on page 3 of the Action as "similarities" between Schombourg et al.'s process and applicant's claimed process, Applicant notes:

1. The selection of compounding equipment by Schombourg et al., including an extruder or a simple internal type mixer, at Column 7, lines 51-56, depends on the polymers and degree of cross-linking desired. Thus, the fact that Schombourg et al. may use an extruder to obtain a high degree of cross-linking, does not teach or suggest

Applicant's claimed process which avoids or minimizes cross-linking, even if both use an extruder during their processing.

2. The optional use by Schombourg et al. of an unpelletized polyolefin, Spherilene, to carry the silane is only for that purpose, hence porosity is required for use as a carrier, and is a very minor component in the composition. Other carriers which may be used by Schombourg et al. (note Col. 5, lines 45-53), include titanium dioxide, silica and carbon black. In Applicant's claimed process polyolefins are the principal or main ingredients, and serve an entirely different function. Applicant's process does not require porosity, but "virgin" polyolefin, while Schombourg et al. may use any of the listed carriers for silane, including titanium dioxide, silica and carbon black.

3. The Action notes that Schombourg et al. "discloses that the silanes" [which Applicant notes are carried by a carrier] (...are added in the form of a porous polyolefin such as VALTEC) are "mixed into the polymer blend after grafting of the maleic anhydride." Maleic anhydride in Schombourg et al. is present only to react with the silane for cross-linking. Schombourg et al. seeks to react all of the maleic anhydride sites with silane. In Applicant's process it is the maleic anhydride sites which are preserved and not reacted, since they are utilized to impart adhesive properties to the adhesive resin product.

In view of the above noted differences between the teachings of Schombourg et al. and Applicant's process and the produced adhesive resin, including teachings of the cited reference away from Applicant's claimed invention, it is submitted that rejection under 35 USC §102(e) is without support and its withdrawal is requested.

**The Rejection of Claims 41-43 as Unpatentable
Over Schombourg et al. Under 35 USC §103(a)**

Applicant has shown above wherein the method and adhesive resin produced in claims 1, 14 and 25 are not taught or suggested by Schombourg et al., and wherein the product of Schombourg's process is not an adhesive (note the maximized cross-linking), but is an elastomer, which may be used as a component of an adhesive. Therefore, it is respectfully submitted that the premise in the Action that Schombourg et al. "discloses that his composition should be used as an adhesive" is without support, and that the conclusion based on that premise, that it would have been obvious to use the composition of Schombourg et al. as an adhesive to a substrate, is also without support, and is incorrect. Withdrawal of the rejection is believed to be in order and is requested.

The Kempter Patent Cited of Interest

Applicant notes the Kempter patent, which was cited of interest in the Action, and asserted as disclosing that Spherilene is a polyolefin produced without conventional pelletization and has "irregular absorbent open pore highly absorbent surfaces". As noted in Kempter, the product is cross-linked (Col. 2, lines 3-8), for example through the addition of a silane or other cross-linking material. Such a material may be useful in some applications, but is not relevant to Applicant's process in which an adhesive resin is produced through shear mixing a polymerized monomer composition with at least one graft polymer or copolymer. It is respectfully submitted that Kempter fails to teach or suggest Applicant's process to one skilled in the art.

Kelusky, U.S. Pat. No. 5,137,975, Cited by the Examiner in Applicant's Corresponding PCT Application

Applicant noted that Examiner Mullis cited Kelusky, U.S. Patent No. 5,137,975 in the International Search Report in Applicant's corresponding PCT Application No. PCT/US03/24755, but did not include a citation to Kelusky in the Office Action mailed May 11, 2004, in the instant application. The undersigned attorney telephoned Examiner Mullis on July 7, 2004, to determine whether the failure to cite Kelusky in the Office Action of May 11, 2004 was an oversight. Examiner Mullis kindly advised that he was aware of the Kelusky patent at the time the Search Report and the Office Action of May 11, 2004 were drafted and mailed, but had decided that the Schombourg et al. and Kempter patents were more important references, and had decided not to cite the Kelusky patent in the Office action. It was agreed that the undersigned attorney would make a note of the telephone conference and the Examiner's decisions with respect to the Kelusky patent in this response.

Applicant points out that Kelusky is concerned with producing an improved polypropylene graft with an unsaturated carboxylic acid or anhydride. Kelusky does not teach a process for producing a polyolefin-based adhesive resin. While Applicant uses a graft polymer or copolymer as a component in his process, it is only one component in his process. That a graft polymer or copolymer may be known, does not teach one skilled in the art Applicant's process for producing the improved polyolefin-based adhesive resin obtained by Applicant's process.

CONCLUSION

Applicant submits that claims 1-43 are patentable over the cited references, alone or in combination, for the reasons expressed above.

In view of the above Amendment and these remarks, Applicant respectfully submits that claims 1-43 are now allowable, and request withdrawal of the rejections.

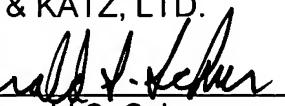
Reconsideration of the above-identified application is respectfully requested in view of the amendments above and the discussion which followed.

It is therefore believed that the application is in condition for allowance. An early notice to that effect is earnestly solicited.

Applicant requests that if any matter remains unresolved in view of this Amendment, the Examiner kindly telephone the undersigned attorney of record so that the unresolved matter can be expeditiously resolved.

Respectfully submitted,

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